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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/031,525	04/09/2002	Victor A Maroni	180.3	6197
7590	03/23/2004		EXAMINER	
Harry M. Levy Emrich & Dithmar 300 South Wacker Drive # 300 Chichago, IL 60606			KOPEC, MARK T	
			ART UNIT	PAPER NUMBER
			1751	
DATE MAILED: 03/23/2004				

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/031,525	MARONI ET AL.	
	Examiner	Art Unit	
	Mark Kopec	1751	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-14 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 09 April 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|--|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date ____ | 6) <input type="checkbox"/> Other: ____ |

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This application is a 371 of PCT/US00/20047 (filed 7/21/00). Claims 1-14 are currently pending.

The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

The references cited in the Search Report mailed 9/18/00 have been considered, but will not be listed on any patent resulting from this application because they were not provided on a separate list in compliance with 37 CFR 1.98(a)(1). In order to have the references printed on such resulting patent, a separate listing, preferably on a PTO-1449 form, must be filed within the set period for reply to this Office action.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-14 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

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In each of claims 1, 12, 13 and 14, applicant should clarify the recited process steps to clearly and sequentially recite required heating temperatures and partial pressure(s).

For example, in claim 1, is the recited "...maintaining the temperature at the lower of a non-superconducting phase take-off temperature and the Bi-2223 superconducting phase grain growth temperature" preformed subsequent to "heating the composite in an atmosphere having a pO₂ not less than about 0.004 atm"? Additionally, at what stage is "...varying the oxygen pO₂ and the temperature... to produce not less than about 80%" preformed? Is this step subsequent to or concurrent with other steps? Also, does "...varying the oxygen pO₂ and the temperature... to produce not less than about 80%" require changing both the pressure and temperature, or only one of the two variables? Clarification is required.

Independent claims 12, 13 and 14 should be amended in a similar manner, as the recited/required process steps are unclear.

The use of "bullets" or "Roman numerals" for recited process steps may be helpful. Applicant is invited to contact the examiner in order to discuss possible claim amendments to overcome these rejections.

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It appears claim 5 should depend from claim 1 (as opposed to instant claim 4). Specifically, claim 5 requires heating temperatures and pressure outside the scope of claim 5.

In claim 11, applicant should specify when the recited additional step(s) takes place (prior or subsequent to the steps recited in claim 1).

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the

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art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary.

Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

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Claims 1-14 are rejected under 35 U.S.C. 102(e) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Li et al (5,798,318).

Li et al (5,798,318) discloses a (Bi,Pb)SCCO-2223 oxide superconductor composite which exhibits improved critical current density and critical current density retention in the presence of magnetic fields. Retention of critical current density in 0.1 T fields (77 K, .perp. ab plane) of greater than 35% is disclosed. Significant improvements in oxide superconductor wire current carrying capacity in a magnetic field are obtained by subjecting the oxide superconductor composite to a post-processing heat treatment which reduces the amount of lead in the (Bi,Pb)SCCO-2223 phase and forms a lead-rich non-superconducting phase. The heat treatment is carried out under conditions which localize the lead-rich phase at high energy sites in the composite (Abstract). Significant improvements in oxide superconductor wire current carrying capacity in a magnetic field are obtained by subjecting the oxide superconductor wire containing (Bi,Pb)SCCO-2223 to a post-processing heat treatment which reduces the lead content in the (Bi,Pb)SCCO-2223 phase by an amount in the range of about 5 wt % to about 50 wt %, and typically to about 40 wt %, and to localize the exsolved lead in a lead-rich secondary phase

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outside the superconducting grain colonies and/or at other high energy sites in the composite. Reduction of lead in the (Bi,Pb)SCCO-2223 phase improves intragranular electrical properties. When the heat treatment is conducted under conditions which localize secondary phases formed thereby at high energy sites, the secondary phases do not significantly degrade the intergranular transport properties of the composite (Col 4, lines 26-41). Heat treatment used according to the present invention may be in the range of 800.degree. C. to about 500.degree. C. at an oxygen content of 0.03 to 100 atm. Preferably the heat treatment is conducted at a temperature in the range of about 790.degree. C. to about 630.degree. C. and most preferably at a temperature in the range of about 650.degree. C. to about 750.degree. C. The oxygen pressure is preferably in the range of 0.075 atm to 1.0 atm O.sub.2, such that the pressure is above the reaction curve 20 at all times (Col 9, line 64 to Col 5, line 5). A typical heat profile is shown in FIG. 4, where T.sub.1 =850.degree.-800.degree. C., and preferably 830.degree.-825.degree. C. (40 h, 0.075 atm O.sub.2), T.sub.2 =815.degree.-780.degree. C., and preferably 813.degree.-805.degree. C. (40 h, 0.075 atm O.sub.2) and T.sub.3 =790.degree.-780.degree. C., and preferably 787.degree. C. (30 h, 0.075 atm, O.sub.2). The interested reader is directed to

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co-pending application U.S. Ser. No. 08/041,822 filed Apr. 1, 1993, now U.S. Pat. No. 5,635,456 the contents of which are herein incorporated in its entirety by reference. The (Bi,Pb)SCCO-2223 phase is substantially single phase 2223; however, 100% conversion may not always be obtained. Small amounts of starting materials and/or other non-superconducting phases may be present. They should not be present at levels greater than 10 vol %, and preferably less than 5 vol % (Col 10, lines 50-64). See also Col 12, lines 37-50. The reference specifically teaches the claimed (temperature, pressure) post-treatment.

The reference is anticipatory.

In the event that any minor modifications are necessary to meet the claimed limitations, such as minor variation in heating duration, such modifications are well within the purview of the skilled artisan.

Claim 14 is rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Dorris et al (5,468,566).

Dorris discloses an article and method of manufacture of (Bi, Pb)-Sr-Ca-Cu-O superconductor. The superconductor is manufactured by preparing a first powdered mixture of bismuth

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oxide, lead oxide, strontium carbonate, calcium carbonate and copper oxide. A second powdered mixture is then prepared of strontium carbonate, calcium carbonate and copper oxide. The mixtures are calcined separately with the two mixtures then combined. The resulting combined mixture is then subjected to a powder in tube deformation and thermal processing to produce a substantially phase pure (Bi, Pb)-Sr-Ca-Cu-O superconductor (Abstract). In a preferred embodiment the method of the invention involves heat treatment at about 810.degree.-825.degree. C. in 8 percent O.sub.2 (or in air with 13 percent O.sub.2) for at least about 50 to 350 hours and most preferably 250 hours (or alternatively at 830.degree.-845.degree. C. in air), versus 845.degree. C. in air for 350 hours in the case of the prior art one step process (see FIG. 1) (Col 2, lines 55-65). In another form of the invention Ag can be added (up to about 20 wt. %) to the intermediate phases described hereinbefore. The powder mixtures with Ag added therein were subsequently processed in the manner detailed previously (Col 3, lines 18-21). The reference specifically teaches small amounts of secondary non-superconducting phases (Table 1). Although made by a slightly different process, the resultant products appear identical to those claimed. "[E]ven though product-by-process claims are limited by and defined by the process, determination of

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patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process." In re Thorpe, 777 F.2d 695, 698, 227 USPQ 964, 966 (Fed. Cir. 1985)

The reference is anticipatory.

In view of the foregoing, the above claims have failed to patentably distinguish over the applied art.

The remaining references listed on forms 892 and 1449 have been reviewed by the examiner and are considered to be cumulative to or less material than the prior art references relied upon in the rejection above.

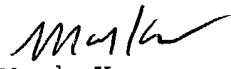
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mark Kopec whose telephone number is (571) 272-1319. The examiner can normally be reached on Monday - Friday from 9:30 AM to 6:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dr. Yogendra Gupta can be reached on (571) 272-1316. The fax phone number for the

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organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


Mark Kopec
Primary Examiner
Art Unit 1751

MK
March 18, 2004